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(54) Title: REMOTE MAGNETICALLY INDUCED TREATMENT OF CANCER

(57) Abstract: This invention describes unique treatment methods and innovative articles that can be placed in a human or animal body to enable controlled destruction of diseased tissue. The methods include destruction of diseased cells and tissues by magnetically controlled motion and an externally controllable drug delivery process with a capability to start and stop the drug delivery at any time, for any duration. This invention provides two approaches to diseased cell destruction, (1) magneto-mechanical disturbance of cell structure (e.g. cancer cells) for cell lysis and (2) magnetically activated drug release at local regions (e.g. tumors) from a magnetic-particle-containing drug reservoir. The invention also provides combinations of both the above treatments for dual therapy. It further combines one or both of the treatments with magnetic hyperthermia for multifunctional cell destruction therapy. The approaches can be combined with magnetic MRI for monitoring the accuracy of placement as well as for following up the cancer destruction progress and appropriate reprogramming of the magneto-mechanical therapy and remote-controlled drug release.



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